



Mark Century* 100B Numerical Positioning Control

A packaged Mark Century two- or three-axis system
for automatic operation of horizontal boring mills

*Trademark of General Electric Company

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Mark Century 100B numerical positioning control easily justified in any plant...

Mark Century packaged numerical controls are available in several models—each tailored to a special type or group of machines. The 100B control is designed particularly for use with horizontal boring mills and there are other G-E packaged systems for machines with different control requirements such as drilling, turning, and milling.

All G-E packaged controls come in a basic design with a number of pre-engineered options which can be added inexpensively for extra versatility. The user benefits from the packaged design concept by getting a high performance N/C system on machines of his choice without paying for unnecessary features.

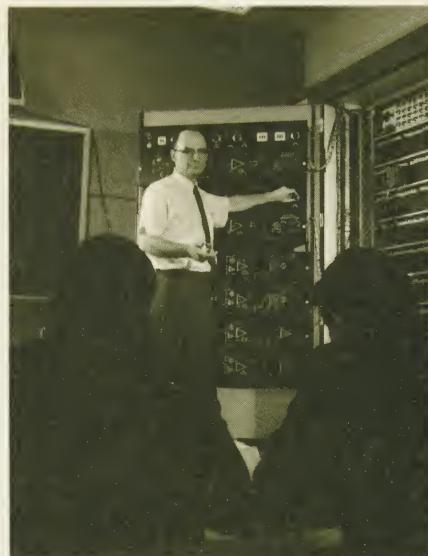
Furthermore, all G-E packaged controls are substantially similar in design and construction and this compatibility can reduce operating costs significantly where several are in use. Training expenses are less and overall operating efficiency is improved as a result of similarities in programming and maintenance.

The 100B control is offered by the leading builders of horizontal boring mills. For the user, these machines with the Mark Century 100B control offer outstanding value.

Highly reliable

The Mark Century 100B control employs the same high quality construction standards and components found in all General Electric Mark Century controls. Furthermore, reliability of the 100B control is backed by General Electric's more than a decade of experience in building numerical controls for over 100 different machine-tool manufacturers.

G-E Mark Century 100B numerical control systems take full advantage of the inherent reliability of transistorized, printed circuits. Input data is distributed, stored, and acted upon by solid-state circuitry.



Factory training schools for your maintenance personnel.

Total service package

When the Mark Century 100B control is delivered to your plant, G-E installation startup and check-out specialists are on hand to assist with installation and to make certain the control operates according to specifications. And should you need fast, skilled maintenance service, General Electric N/C Service Engineers from a network of over 50 offices can provide it.

But our service doesn't stop there. G.E. offers the most complete service package in the industry today. For example, these services are available to every Mark Century numerical control customer:

- Training schools for your maintenance personnel
- Automatic check tape for decoding circuits
- Unmatched product warranties
- Local stocks of replacement parts
- Complete service and installation manuals
- Printed circuit board exchange plan
- Computer software support
- World-wide maintenance service



Optional photoelectric tape reader makes system completely automatic.

for 2- or 3-axis boring mills

The Mark Century 100B control is a 2-axis N/C system suitable for both positioning and straight line milling at manually set feed rates. Optionally, it can be expanded into a 3-axis system for head, table, and saddle control of a horizontal boring mill.

Maximum flexibility

The basic Mark Century 100B control operates entirely from manual inputs. A photoelectric tape reader can be added optionally to make it a completely automatic system.

Manual input devices on the operator's panel allow complete machine control including plus or minus departure commands and full floating zero position selection. Manual input capability also includes a choice of ten preparatory commands for selection of automatic machining modes, and anyone of 99 miscellaneous commands as assigned by the machine tool builder.



Manual data input panel takes preparatory, miscellaneous, and individual axis commands.

The 100B control has a 4-speed clutch servo drive for each motion. This servo drive coupled with the preparatory command function provides a unique flexibility to the operator. Typical modes of operation include:

- Selectable by "G" commands
- Coarse positioning
- Fine positioning
- Selectable backlash takeup
- Anticipation milling to avoid overshoot on inside corners
- Drilling, boring, or tapping cycles

What's more, all 4-speed zones are adjustable. This allows the control to be matched to machines covering a wide range of sizes and operating speeds.

Other optional features include sequence number readout, rotary or linear Accupin* feed-back units, and initial position circuits for rapidly returning to an absolute reference on the machine.

Operator convenience and easy maintenance

The console is designed for maximum operator handling ease. Operator's devices such as the latest miniaturized push buttons are functionally arranged on a sloping panel across the top front of the unit.

A check tape and condition indicator boards provide fast, thorough checkout of the control reading and data storage circuits.

The logic-circuit portion of the control system is functionally arranged in modularly constructed panels. Plug-in printed circuit boards—clearly identified by type and plug-in receptacle number—make board changing easy and foolproof.

A modern NEMA 1, pressure-ventilated, floor-mounted enclosure houses all control components. Machine control connections are made with plug-in connectors, and swing-open gasketed doors front, back, and top provide easy access to all parts of the unit. Interior walls are painted white for maximum visibility.

And the Mark Century 100B positioning control is compact. It measures only 44-inches wide, 28-inches deep, and 54-inches high.

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Mark Century 100B numerical positioning control

Standard Features

Table Motion (X-axis)—7 digit programmable to ± 999.999 inches.

Head Motion (Y-axis)—6 digit programmable to ± 99.999 inches.

Full Floating Zero—Simplifies set up of large work pieces. Zero may be set on or off the table as desired.

Plus or Minus Programming—Axis commands can be programmed either side of the zero reference.

Resolution—Control accepts data to .0001 inch; makes possible full utilization of accuracy built into the machine tool.

Four-speed Clutch-type Servo Drive—Gives complete flexibility of machining modes.

Adjustable Servo Speed Zones—Provides optimum performance for machines with wide range of operating speeds and dynamic characteristics.

Automatic Machining Modes—Preparatory commands simplify programming by establishing automatic machining sequence.

Manual* Data Input Panel—Accepts preparatory (G-function) and miscellaneous (M functions) as well as individual axis commands.

Manual Operation—Plus-minus jog buttons permit servo operation of each machine axis under manual control.

Feed Hold Button—Permits operator to interrupt motion at any time without loss of position.

Accupin Linear Transducer—Provides direct measurement of machine position. Adjustment and wear problems are eliminated.

99 Miscellaneous Functions—Provides opportunity for full range of programmed machine functions. Typical functions include tool selection and coolant control.

Optional Features

Spindle or Saddle Motion (Z) Axis—6 digit programmable to ± 99.999 inches.

Initial Position—Provides an automatic rapid traverse circuit for each axis to an absolute zero reference position on the machine. The initial position and direction of zero travel may be established by the machine builder.

Photoelectric Tape Reader—This plug-in option may be added at the factory or in your shop. The kit includes reader, amplifier and cables. This feature also includes parity check, parity override and sprocket hole verification.

Sequence Number Readout—Provides a 2 digit projection-type, numerical readout of tape sequence number.

There is a Mark Century numerical control system to fit your needs no matter what your performance requirements may be. See your G-E Sales Engineer or machine-tool builder's representative for more information about the Mark Century 100B and other General Electric numerical control systems.

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